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TASK III. VINYL CHLORIDE

AMERICAN PUBLIC HEALTH ASSOCIATION

PREPARED FOR

ENVIRONMENTAL PROTECTION AGENCY

NOVEMBER 1975

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Epidemiology Studies

TASK III - Vinyl Chloride

November 1975

FINAL REPORT

U.S. Environmental Protection Agency
Office of Toxic Substances
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Using data from the 1970 Census of Population estimates of the number of people living with a 5 mile radius of industrial plants producing vinyl chloride and vinyl chloride resins was prepared. Findings were:

0 - ½ miles	37,000
½ - 1 miles	197,000
1 - 3 miles	1,506,000
3 - 5 miles	2,749,000
	4,489,000

The sex. and age characteristics are also provided.

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TASK III - Vinyl Chloride

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For

Environmental Protection Agency

Office of Toxic Substances
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CONTENTS

I. Summary of Results

II. Estimates of Population

A. Source of Plants Surveyed
B. Sources of Population Data
C. Estimate Methodology

III. Geographic Estimates

A. Population in Each Direction From Each Plant
B. Percent of Time Population is Downwind From Each Plant
C. Population Within Five miles of Two Plants
D. Population Within Five Miles of Three Plants

IV. Reliability of the Results

V. Detailed Tables

A. Population by Age, Sex and Distance From Plants
B. Population in Each Direction from Each Plant
C. Population Within Five Miles of Two Plants
D. Population Within Five Miles of Three Plants
E. Appendix--List of Plants

I. Summary of Results

In 1970 an estimated 4.5 million persons were living within five miles of plants currently producing vinyl chloride or vinyl chloride resins. Of these, 4.3 million were living in census-tracted areas, that is, in or in the environs of cities which generally had a population of 50,000 or more. The remainer resided in or near smaller places.

Data available from the 1970 Census of Population for the tracted areas permitted estimates to be prepared of those persons living within four zones around the plants. The outer limit - 5 miles - was chosen because previous studies of emission levels were limited to this or lesser distances. The zones shown permit a choice in the distance from the source. The estimated number of persons living at the various distances from the plants are as follows:

0 to ½ mile	37,000
½ to 1 mile	197,000
1 to 3 miles	1,506,000
3 to 5 miles	2,749,000
Total	4,489,000

No data are presented on the number of workers employed by the plants. Some of the workers, however, would be expected to live in proximity to the plant in which they are employed.

Since April 1970, when the 1970 Census of Population was taken, the population of the United States has increased by about 5 percent. In addition, the U.S. Bureau of the Census has reported that the enumeration missed some 4 million persons. For the Nation, the current population living within the 5-mile radius of the plants is undoubtedly larger than in 1970. Because of varying rates of growth in localities and in portions of the localities, it would be inadvisable to attempt to apply the national adjusted population rates to the figures for any specific plant or combination of plants.

II.A. Source of Plants Surveyed

The Environmental Protection Agency through its Research Triangle Park facility (EPA/RTP) prepared a list of plants for possible inclusion in the survey. The list gave separate listings for producers of ethylene dichloride, vinyl chloride, PVC resins, copolymers and PVC/propylene. Consequently, a single plant could be listed in two or more of these classifications. Every effort was made to verify the listing, to include plants in the industry not listed, and to exclude those which should not be in the survey and those which were no longer producing vinyl chloride or related products.

The initial step in this procedure was to contact trade associations which presumably were in a position to provide this information. Neither the Manufacturing Chemists Association nor the Society of Plastic Industries was able to supply such a list. It was learned from these sources, however, that a private research organization (Tabershaw/Cooper Associates, Berkeley, California), had recently made a survey of vinyl chloride producers. A list of the plants included in this survey was obtained from Tabershaw/Cooper. Fewer plants were identified than in the EPA/RTP list, but it did include the major producers and an additional plant which was added after verification that it fell within the scope of the survey.

Regional offices of the EPA issue permits for waste disposal plants in the industry which do not discharge their wastes into a municipal sewage system. Each regional office with plants under consideration for inclusion in the survey was contacted by telephone and asked for the specific addresses (street and number or as complete a description as possible of the physical location) of the plants for which they had information, if the plants were operating, and if their products fell into the scope of the survey. They were also asked if they knew of any additional plants which should be included.

In addition, telephone conversations were held with respondents in each tracted area. The names of these respondents were obtained from the Bureau of the Census. They were usually the directors of regional, county, or city planning boards who participate in the census tract program of the Bureau. Information requested was similar to that requested of the EPA regional offices.

When the inclusion of a plant was doubtful, the management of the plant was contacted by telephone for a determination. Several instances in which the products were known but it was questionable as to whether the plant should be included were referred to the National Institute of Occupational Safety and Health for a recommendation.

Information obtained from local sources resulted in the addition of four plants: Borden, Inc., Geismar, Louisiana; Foster Grant Co., Leominster, Massachusetts; and GAF Corporation and Monsanto Co., Texas City, Texas.

II.B. Sources of Population Data

National population data for small geographic units are available only from the 1970 Census of Population. Although current population estimates have been prepared for some of the tracted areas, the estimates do not provide the detail available from the 1970 census reports. Consequently, the decision was made to use the 1970 census data for all areas, regardless of the existence of later estimates for some areas.

For those plants located in tracted areas, the population estimates are based on census tracts. Census tracts are defined by the Bureau of the Census as "small areas into which large cities and adjacent areas have been divided for statistical purposes." Each tract consists of one or more enumeration districts (E.D.'s) to enable the Bureau of the Census to consolidate data to obtain totals for cities, county units, counties, and other areas. In some, but not all, census-tracted areas, limited information is available for sections as small as one city block.

Published census tract data provide a wealth of data on the demographic, social, and economic characteristics of residents. Such characteristics as race (white, Negro, all other races), age by sex for selected age groups, number of households and household relalationships (such as head, wife, other related individual, non-relative of head), are published in the census tract reports. These data are from a 100-percent count of the population.

Data based upon samples are also available for social characteristics such as birthplace of parents, school enrollment, years of school completed, residence in 1965; and labor characteristics. Sample data are also available for males and females on the employment status of the population 16 years old and over, and industry and occupation of employed workers. Information on income, also based upon sample data, provide, for example, income for families and unrelated individuals, and ratio of family income to poverty level.

Data are also published on such housing characteristics as type of occupancy, equipment (plumbing and kitchen facilities), value of owner-occupied units, and contract rent. These data are also available by enumeration districts in unpublished form and may be obtained from the Bureau of the Census.

Data similar to those published for census tracts are also available for county subdivisions. These are the primary units of a county such as a city, village, or town, or census county divisions. These census county divisions are areas defined by the Bureau of the Census for the presentation of data for areas smaller than counties in those counties where the minor civil divisions are not suitable for statistical purposes.

II.C Estimate Methodology

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The respondents in each tracted area in which plants in the survey were located were also asked for the number of the census tract in which each plant was located. They were requested to draw concentric circles with radii of ½, 1, 3, and 5 miles about each plant and to assign each tract within the 5-mile radius of the plant to one of the four zones.

We asked that the tract numbers be read to us over the telephone and that the worksheets that they used to develop the information be mailed to us later. Some respondents also sent in maps that had been used.

Although many respondents complied fully with our request, some gave only the numbers of the tracts in which the plants were located. Sometimes the information was not usable. In these cases, we made the assignment to the zones from tract maps. These are published in the 1970 Census Tracts, final reports, PHC (1) series. There is a report in the series for each standard metropolitan statistical area for which tracts were delineated for the 1970 census.

The respondents were requested to assign each tract to only one zone, even though it fell into more than one zone. The rule was that the tract was to be assigned to the zone which included the largest proportion of its population. This would lessen the burden on the respondents and on the compilation of the age and sex data and, assuming that the misassignment of parts of the tracts would tend to average out, give about the same results as splitting tracts. We asked the local respondents to make the assignment to zones because they would have better knowledge of the distribution of the population within the tracts. When we made the assignments, we assumed an even distribution of the population within the tracts and placed each tract in the zone in which the largest part of its area lay.

Definition of the areas by enumeration district rather than by tracts would have been preferable. However, the basic data were more than five years old and the maps necessary to make an enumeration district assignment are not available in Washington. These are stored at the Bureau of the Census office in Jefferson, Indiana. An assignment by enumeration district might be considered in any subsequent follow-up study, if time permits or need dictates.

A number of plants are in or near small communities outside tracted areas. The estimates of the population near these plants reflect the population of county subdivisions within a 5-mile radius. The areas of the county subdivisions are too large to permit the establishment of distance zones within the 5-mile radius. For the estimates of the population by zones in the untracted areas, it was assumed that the proportion of the population within each distance from the plants was about the same as that of the corresponding zone for the tracted areas as a whole.

Although Illiopolis, Illinois, is in a tracted area, it was treated as outside a tracted area on the recommendation of the local respondent.

The plants considered for inclusion in the survey are shown in Section V.E. Most are listed as given on the EPA/RTP list. Some plants, however, are subsidiaries and are known locally by the subsidiary name, rather than by the name of the parent company. In these instances, the name of the subsidiary is shown in parentheses under the listing of the parent company.

The data on age and sex for areas within tracted areas are from a 100-percent count of the population. With the exception of those under 1 year and those 1 to 4 years of age, the numbers represent consolidation of age groups published in the census tract reports. The age group 5 to 14 years, for example, is the sum of those reported as 5 to 9 and 10 to 14 years. The published tract reports show a total for those under 5 years and a subtotal of those 3 and 4 years old. The number of children under 1 year of age was estimated as one-third of the difference between those under 5 and those 3 and 4 years old.

The data on age for areas outside tracted areas are from unpublished 20-percent sample data for county subdivisions. The data for those 5 years and over represent consolidation of age groups as in the tracted areas. Children under 5, however, are reported as those under 3 and those 3 and 4 years old. The number of children under 1 was estimated as one-third those under 3.

There was one exception made in the procedure for obtaining age by sex for county subdivisions. Such data are published for the municipios (county equivalents) in Puerto Rico. The estimates for the PPG Industries plant in Playa Guayanilla were

based on the asumption that the age-sex distribution of the population in each barrio of a municipio did not differ from that for the total population of the municipio.

In a relatively short period of time the number of plants producing vinyl chloride and related products varies; plants may begin production, cease production, or close. Currently, production is reported to be low because of business conditions. Production, however, is expected to increase with a rise in industrial production generally. It must be remembered that the plants listed are those reported to be in production in July 1975. Furthermore, there are several plants now under construction.

In view of the changing number of plants producing vinyl chloride, a separate listing is given of those plants reported as closed. In any future survey or use of the plant listing, these plants should be contacted to determine whether production has been resumed.

For the sake of accounting for all plants in the EPA/RTP list, those not included in the survey are also given.

In the distribution of the population by distance in Section V, the listing is by State, place, and plant. In some places the plants were located so close to one another that the distance zones could be considered identical. See, however, the exceptions discussed in Section III-C.

It is interesting to note that the distribution of the population by zone and the relative area of each zone correspond rather closely. As shown in the following tabulation, there are only small differences in the percent distribution.

Table A. Percent Distribution of Population and Area by Zone.

Distance zone	Percent of population in zone	Percent of area in each zone
0 - ½	1	1
½ - 1	4	3
1 - 3	34	32
3 - 5	61	64
Total	100	100

Table B. Population by Age, Sex and Distance from the Plants.

Age and Sex	Distance in miles				
Males (by age)	All zones	0 to ½	½ to 1	1 to 3	3 to 5
under 1 year	39,071	363	1,782	13,413	23,513
1 to 4	157,336	1,401	7,241	53,668	95,026
5 to 14	454,895	3,604	21,584	153,152	276,555
15 to 44	893,154	6,989	38,639	299,625	547,901
45 to 64	464,605	4,051	19,599	158,150	282,805
65 years and over	154,990	1,518	6,284	51,427	95,761
Total	2,164,051	17,926	95,129	729,435	1,321,561
Females (by age)					
under 1 year	37,498	343	1,730	12,701	22,724
1 to 4	151,407	1,312	6,935	51,533	91,627
5 to 14	439,730	3,594	21,167	147,925	267,044
15 to 44	962,162	7,447	41,281	320,038	593,396
45 to 64	502,930	4,214	21,323	169,557	307,836
65 years and over	231,991	2,183	9,900	75,213	144,695
Total	2,325,718	19,093	102,336	776,967	1,427,322
Total, both sexes	4,489,769	37,019	197,465	1,506,402	2,748,883

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III.A. Population in Each Direction From Each Plant

For each plant or group of nearby plants there is one table in Section V.B. showing the population residing in each of the 16 compass directions from the plant. Each of the 16 directions represents a 22-½° angle within which the resident population has been estimated. These data are presented separately for each 0-½, ½-1, 1-3 and 3-5 mile zone around each plant. In the cases where there was more than one plant, but the plants were close enough together, they were considered as a single point source and the data presented in a single table. In two cases the plants were far enough apart so that this could not be done, but the plants were close enough so that the 5-mile zones around the plants overlapped. These two cases are discussed individually in Sections III.C. and III.D.

Single point sources are located in the following places or combination of places:

State	Place
California	Carson
Delaware	Delaware City
Kentucky	Calvert City
Louisiana	Baton Rouge
	Geismar
	Norco
	Taft
	Plaquemine
	Westlake
Ohio	Painesville
Texas	Deer Park
	Pasadena
	Texas City

To estimate the population around each plant or group of plants, the location of each of these plants was plotted on the appropriate Bureau of the Census maps of 1970 census tracts. To determine the direction that each census tract is from the plant, a transparent template shown below, was constructed showing the 22½° angle for each of the 16 compass points.

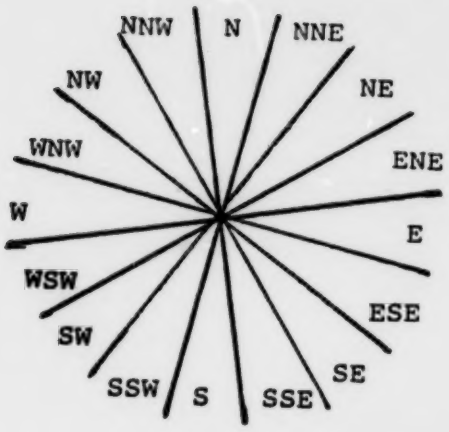

Figure 1. The Direction Template

By placing the center of the template over the plant location one can estimate for each census tract the percentage of its area that lay within each of the 16 compass directions. This assumes that errors will even out in the total. All the populations for a given direction were then added together to obtain an estimate of the total population in that direction. By this method, population estimates were obtained for each of the 16 compass directions for each of the four zones around each plant.

For plants that were located in areas for which the Bureau of the Census does not have census tracts, maps of census county divisions were used and the same procedures were followed as above. Census county divisions are generally larger than census tracts in area, so that the estimates of directions are cruder in these cases. However, this occurs only in the less populous areas, so that the total is affected the least.

III.B. Percent of Time Population is Downwind From Each Plant

The tables in Section V.B., showing the population for each direction and distance from each plant, have been designed to provide maximum flexibility when these data are interpreted or combined with data from other sources. One use of these data is to combine the data for each plant with the frequency of winds from various directions to arrive at a table showing the frequency with which various population groups are downwind from a plant.

For each plant, one can acquire the frequency of the various wind directions for the location of the plant or for the nearest suitable location available for which the data can be assumed to apply. The following is an example of such a wind rose for 8 compass directions. These wind roses also exist with the frequency of each wind direction broken down into the frequency for each of several wind speed intervals. For the data in this report, one would want a 16-point rose.

Figure 2. Percent of time wind blows from each direction

One can combine the percents from a 16-point wind rose with the population residing in each direction shown in the tables in section V.B. to arrive at a table as shown below for each plant. These tables can then be added together to arrive at a national total for all plants.

Population Downwind from Plant

Distance from plant (miles)	Percent of time Downwind from plant										
	Total	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-10
0-½											
½-1											
1-3											
3-5											
Total											

Figure 3. Population Downwind from Plant

The only problem in applying the above procedures was with populations that are within 5 miles of more than one plant. When the plants were sufficiently close together there was no problem because they could be treated as a single point source of emissions. However, when the plants were far enough apart so that there were times when a given population was downwind from one plant but not from another, there are complications and the procedure had to be modified.

There were two such cases, one in Burlington, New Jersey and one in Fitchburg and Leominster, Massachusetts. These cases are treated individually in sections III.C. and III.D. These sections present the necessary modifications in methodology and the directional data so that, with some suggested simplifying assumptions, the data can be combined with wind rose data to arrive at population downwind data for these cases which can be added to all the other cases to arrive at national totals.

III.C. Population Within 5 Miles of Two Plants

There is one case where the population resides within 5 miles of two plants that were far enough apart to be taken as two separate sources of effluents. This occurs in Burlington, New Jersey. The two plants, Tenneco and Occidental, are within less than ten miles of each other so that the 5-mile zones around the two plants overlap. Note that the cases where there were more than one plant, but the plants were close enough together to be treated as a single point source, have been included in Section III.B.

The population around the Tenneco and Occidental plants can be classified into three categories:

1. Population residing within 5 miles of the Tenneco plant but not within 5 miles of the Occidental plant.
2. Population residing within 5 miles of the Occidental plant but not within 5 miles of the Tenneco plant.
3. Population residing within 5 miles of both plants.

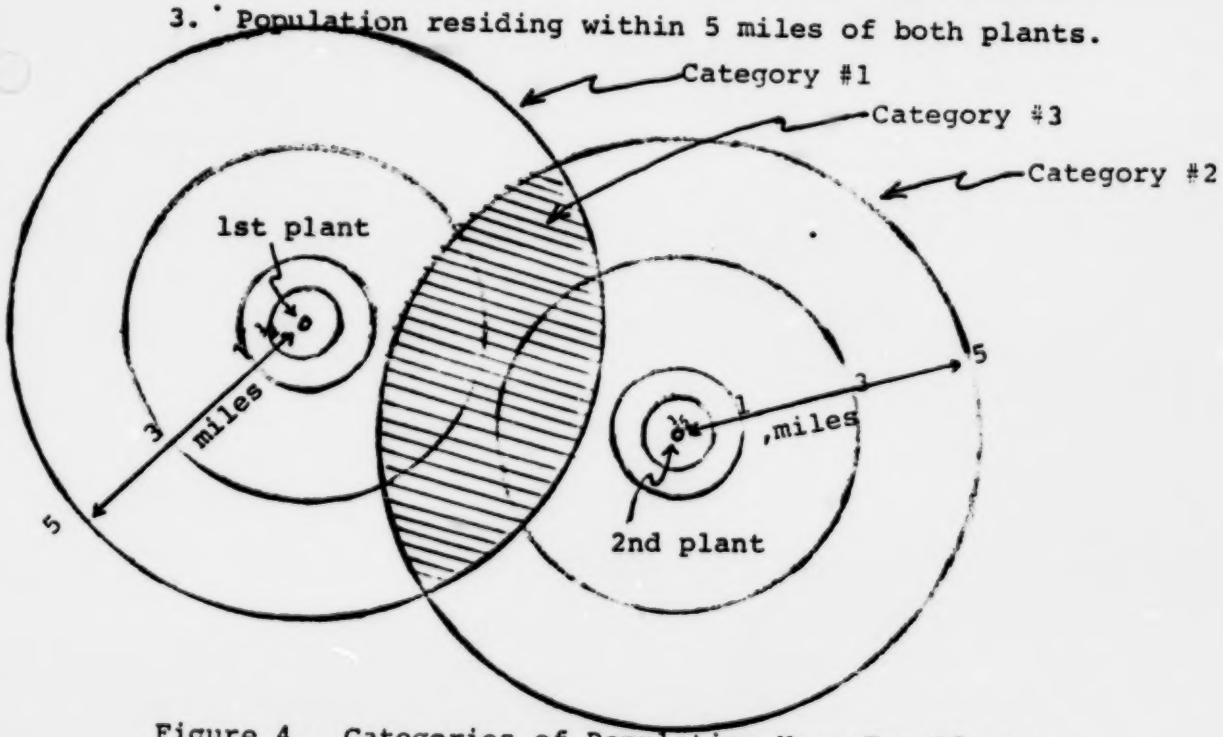

Figure 4. Categories of Population Near Two Plants

All the directional data for these two plants are presented in Section V.C. The first and second categories of population can be treated exactly as has been done in Sections III.A. and III.B., since only one plant is involved in each case.

The third category of population poses some complications in estimating the percent of time that this population is downwind from a plant. For each census tract, the frequencies of the wind direction from each of the two plants must be added together in order to estimate the total percentage of time that the population is downwind from both plants.

One complication is that some census tracts fall within several directions from the first plant, and also several directions from the second plant. The following chart illustrates the case when there are two directions involved from each plant.

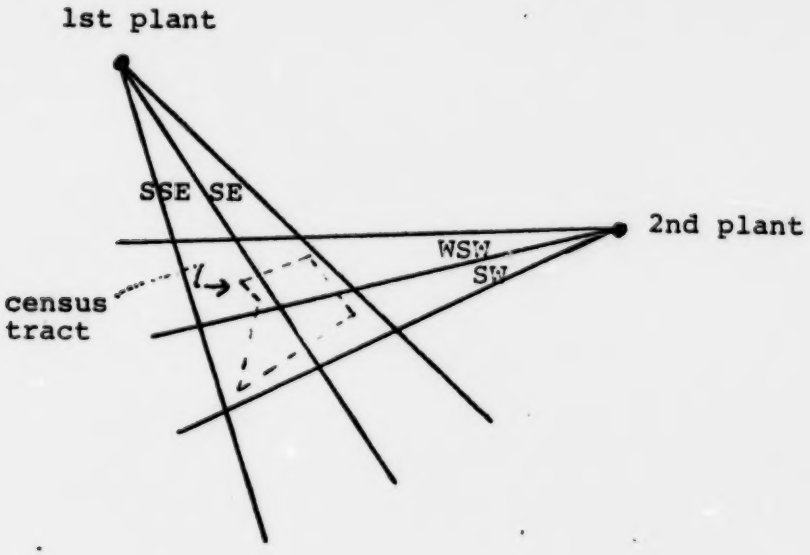

Figure 5. Illustration of a Census Tract at Different Directions from Two Plants.

As seen from the tables in Section V.C., there were often many directions involved from each plant. If one tried to estimate the proportion of the population in each such census tract that lay within a single direction of each of these plants there may be as many as 12 sub-populations in one census tract. This is an excessively large number of small populations to try to estimate from the maps that were available to us. For each census tract, therefore, there is presented the proportion of the population for each direction from the first plant and then there is repeated the same information for the same population for the second plant. It must be borne in mind in interpreting these data in table V.C. that the two lines of data for each census tract represent the same population. In the top line the population is distributed with respect to its direction for the first plant and in the bottom line the same population is distributed with respect to its direction from the second plant.

One can use these data for each census tract to estimate the percent of time a given population is downwind. To do this, one must first multiply the percent of population in one direction from one plant with the percent of population in one direction from the second plant for all combinations of directions to obtain the estimates of the population for each pair of downwind directions. Then one can add the frequencies of the wind direction for each pair of wind directions. When these data are accumulated for all census tracts and all pairs of wind directions, the result will be a table just like the one in Section III.B. so that the data can be combined with other data to produce national totals.

One can reduce the number of pairs of directions before starting these calculations by combining populations in adjoining directions. By judicious combining one can reduce the number of directions for many of the census tracts.

There remains one final complication. If the population in a census tract is in the same distance zone for the two plants, one can perform a straight addition of the two wind frequencies. If, however, the population is in a different distance zone from each of the two plants, one could assign the combined frequency to one or the other zone, thus producing a range for the population estimate within each zone rather than one fixed value. In the table for all plants combined, one could enter such ranges and only after all plants have been included, make an estimate of a single value for each range

For this estimate one could, for example, use the mid-point of the range. If one is unwilling to estimate, he could take the lower value of each range as the minimum population estimate.

III.D. Population Within 5 Miles of Three Plants

In Fitchburg and Leominster, Massachusetts, some of the population live within five miles of three plants. The three plants, Great American, Foster Grant, and Borden are all less than ten miles of each other so that the 5-mile zones around the three plants overlap. However, the three plants are far enough apart so that they can be considered as separate sources of effluents.

One can classify the population around these three plants into the seven categories shown below. The data for these categories are presented in Section V.D.

1. Population residing within 5 miles of the Great American plant but not within 5 miles of the other two plants.

2. Population residing within 5 miles of the Foster Grant plant but not within 5 miles of the other two plants. (There was no population in this category).

3. Population residing within 5 miles of the Borden plant but not within 5 miles of the other two plants.

4. Population residing within 5 miles of the Great American and the Foster Grant plants but not the Borden plant.

5. Population residing within 5 miles of the Great American and the Borden plants but not the Foster Grant plant. (There was no population in this category).

6. Population residing within 5 miles of the Foster Grant and the Borden plants but not the Great American plant.

7. Population residing within 5 miles of all three plants.

Categories 1-3 can be treated exactly as has been done in Sections III.A. and III.B. since only one plant is involved in each category. Categories 4-6 can be treated exactly as has been done in Section III.C. since only two plants are involved in each category.

Category 7 can be treated in a manner similar to categories 4-6 except that one has to deal in three dimensions instead of two and one would have to do more combining of adjacent directions to keep the number of combinations down to a manageable quantity.

IV. Reliability of the Results

In arriving at the population estimates presented in this report there were some steps in the procedures where judgments had to be made. In every case, an effort was made to make the judgments on an objective basis so that any other person making the same estimates would arrive at approximately the same results.

These estimates were made using the best information currently available. The most accurate method of determining the population by distance would be a special enumeration of the population such as the Bureau of the Census conducts for governmental bodies. The resultant improvement in the estimates would not, however, seem to justify the costs involved.

The greatest reliability in our estimates is in the population estimates for the 3-5 mile zone. The reliability of the estimates decreases with decreasing distance from the plant. This is because entire census tracts were assigned to one zone. This process becomes least reliabile for the 0-½ zone for several reasons:

1. The area in the 0-½ mile zone is so small, less than one square mile, so that few census tracts are involved. This means that there are fewer tracts for the effects of assignment by entire tracts to balance out.

2. The plants are usually in industrial districts which are likely to have few or no residents. Tract residents can be expected to live at some distance from the plant; when this is the case, the entire tract was allocated to a more distant zone. However, this could not always be determined with certainty from the census tract maps.

In the less densely populated areas where census county divisions were used because the smaller Bureau of the Census census tracts had not been defined, it is difficult to attribute directions to population groups with much precision. However, this is the best that can be done with the data that are readily available. To achieve greater precision, one would have to survey these areas. This would increase the precision of population estimates for individual locations but would have very little effect on national totals because there areas represent a very small proportion of the total population.

V. A. POPULATION by AGE, SEX and DISTANCE FROM PLANT

POPULATION RESIDING WITHIN SELECTED DISTANCES OF PLANTS PRODUCING VINYL CHLORIDES,* BY AGE AND SEX

Plant location, company distance from plant (in miles)	Total M+F	AGE (in years)											
		Under 1		1 to 4		5 to 14		15 to 44		45 to 64		65 and Over	
		M	F	M	F	M	F	M	F	M	F	M	F
CALIFORNIA													
Carson													
B.F. Goodrich Co. Stauffer Chemical Co.													
0 - ½													
½ - 1	16541	176	160	794	693	2523	2372	3646	3732	1081	978	180	206
1 - 3	259309	2641	2518	10265	9892	25011	24469	51698	54094	25479	27738	9808	15696
3 - 5	405461	3232	3115	12402	11974	35338	33763	85211	86790	43770	47315	15964	26587
Total	681311	6049	5793	23461	22559	62872	60604	140555	144616	70330	76031	25952	42489
Saugus													
Keysor-Century Corp.													
0 - ½													
½ - 1	10935	95	93	389	366	1106	1017	2386	2478	1169	1153	272	411
1 - 3													
3 - 5	12029	112	109	480	495	1546	1521	2613	2627	1052	1015	202	257
Total	22964	207	202	869	861	2652	2538	4999	5105	2221	2168	474	668

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975

V. A-1-4

POPULATION RESIDING WITHIN SELECTED DISTANCES OF PLANTS PRODUCING VINYL CHLORIDES,* BY AGE AND SEX

Plant location, company distance from plant (In miles)	Total M+F	AGE (in years)											
		Under 1		1 to 4		5 to 14		15 to 44		45 to 64		65 and Over	
		M	F	M	F	M	F	M	F	M	F	M	F
DELAWARE													
Delaware City													
Diamond Shamrock Corp													
Stauffer Chemical Co.													
0 - ½													
½ - 1													
1 - 3	6970	62	60	257	225	749	680	1430	1444	781	726	247	309
3 - 5	9218	130	107	511	447	1199	1150	2183	2203	546	508	114	120
Total	16188	192	167	768	672	1948	1830	3613	3647	1327	1234	361	429

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975

POPULATION RESIDING WITHIN SELECTED DISTANCES OF PLANTS PRODUCING VINYL CHLORIDES,* BY AGE AND SEX

Plant location, company distance from plant (In miles)	Total M+F	AGE (in years)											
		Under 1		1 to 4		5 to 14		15 to 44		45 to 64		65 and Over	
		M	F	M	F	M	F	M	F	M	F	M	F
FLORIDA													
Pace													
Air Products, Inc.													
0 - ½													
½ - 1													
1 - 3													
3 - 5	7071	69	56	264	249	824	779	1543	1611	556	615	230	275
Total	7071	69	56	264	249	824	779	1543	1611	556	615	230	275

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975.

POPULATION RESIDING WITHIN SELECTED DISTANCES OF PLANTS PRODUCING VINYL CHLORIDES,* BY AGE AND SEX

Plant location, company distance from plant (In miles)	Total M+F	AGE (in years)											
		Under 1		1 to 4		5 to 14		15 to 44		45 to 64		65 and Over	
		M	F	M	F	M	F	M	F	M	F	M	F
ILLINOIS													
Henry													
B.F. Goodrich Co.													
0 - ½	37			2	1	4	4	6	7	4	4	2	3
½ - 1	146	1	1	6	5	16	16	25	27	15	16	6	12
1 - 3	1161	11	10	47	40	130	123	197	211	121	123	49	99
3 - 5	2013	17	18	82	71	223	214	340	369	208	214	85	172
Total	3357	29	29	137	117	373	357	568	614	348	357	142	286

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975

POPULATION RESIDING WITHIN SELECTED DISTANCES OF PLANTS PRODUCING VINYL CHLORIDES,* BY AGE AND SEX

Plant location, company distance from plant (In miles)	Total M+F	AGE (in years)											
		Under 1		1 to 4		5 to 14		15 to 44		45 to 64		65 and Over	
		M	F	M	F	M	F	M	F	M	F	M	F
ILLINOIS													
Illiopolis													
Borden, Inc.													
0 - ½	30			1	1	4	4	5	5	3	4	1	2
½ - 1	117	1	1	4	4	13	15	21	20	11	14	4	9
1 - 3	922	7	7	32	32	107	118	167	155	92	107	30	68
3 - 5	1597	12	12	57	56	184	206	286	271	156	189	50	118
Total	2666	20	20	94	93	308	343	479	451	262	314	85	197

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975

POPULATION RESIDING WITHIN SELECTED DISTANCES OF PLANTS PRODUCING VINYL CHLORIDES,* BY AGE AND SEX

Plant location, company distance from plant (In miles)	Total M+F	AGE (in years)											
		Under 1		1 to 4		5 to 14		15 to 44		45 to 64		65 and Over	
		M	F	M	F	M	F	M	F	M	F	M	F
KENTUCKY													
Calvert City													
Air Products, Inc. B.F. Goodrich Co.													
0 - ½	102	1	1	3	2	11	10	21	21	11	11	5	5
½ - 1	398	3	2	12	12	43	38	80	81	45	44	17	21
1 - 3	3134	23	19	93	89	338	301	635	641	354	340	135	166
3 - 5	5436	40	33	160	156	586	526	1091	1119	609	59[illegible]	232	290
Total	9070	67	55	268	259	978	875	1827	1862	1019	989	389	482

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975.

POPULATION RESIDING WITHIN SELECTED DISTANCES OF PLANTS PRODUCING VINYL CHLORIDES,* BY AGE AND SEX

Plant location, company distance from plant (In miles)	Total M+F	AGE (in years)											
		Under 1		1 to 4		5 to 14		15 to 44		45 to 64		65 and Over	
		M	F	M	F	M	F	M	F	M	F	M	F
KENTUCKY													
Louisville													
B.F. Goodrich Co.													
0 to ½ mile													
½ to 1 mile	6315	109	90	410	347	1168	1623	1024	1056	162	245	27	54
1 to 3 miles	111146	936	909	3746	3611	11985	11816	20871	23312	11311	13071	3990	5588
3 to 5 miles	146000	1220	1169	4669	4503	12796	12933	27516	28832	14999	17901	7479	11983
Total	263461	2265	2168	8825	8461	25949	26372	49411	53200	26472	31217	11496	17625

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975

POPULATION RESIDING WITHIN SELECTED DISTANCES OF PLANTS PRODUCING VINYL CHLORIDES,* BY AGE AND SEX

Plant location, company distance from plant (In miles)	Total M+F	AGE (in years)											
		Under 1		1 to 4		5 to 14		15 to 44		45 to 64		65 and Over	
		M	F	M	F	M	F	M	F	M	F	M	F
LOUISIANA													
Baton Rouge													
Allied Chemical Co. Ethyl Corporation													
0 - ½													
½ - 1													
1 - 3	25615	274	230	1037	963	2707	2798	6280	6879	1672	1674	430	671
3 - 5	54193	555	523	2128	2086	5974	5821	11409	12431	4901	5269	1332	1764
Total	79808	829	753	3165	3049	8681	8619	17689	19310	6573	6943	1762	2435
Westlake													
Continental Oil Co. PPG Industries, Inc.													
0 - ½													
½ - 1													
1 - 3	11601	104	91	420	447	1392	1422	2430	2526	1100	1096	266	307
3 - 5	44100	403	365	1607	1584	4758	4631	8465	9420	4223	4855	1531	2258
Total	55701	507	456	2027	2031	6150	6053	10895	11946	5323	5951	1797	2565

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975

POPULATION RESIDING WITHIN SELECTED DISTANCES OF PLANTS PRODUCING VINYL CHLORIDES,* BY AGE AND SEX

Plant location, company distance from plant (In miles)	Total M+F	AGE (in years)											
		Under 1		1 to 4		5 to 14		15 to 44		45 to 64		65 and Over	
		M	F	M	F	M	F	M	F	M	F	M	F
LOUISIANA													
Geismar													
Allied Chemical Corp.													
Borden Inc.													
Monochem, Inc.													
Vulcan Materials Co.													
0 - ½	62	1	1	2	3	8	7	11	12	5	6	3	3
½ - 1	233	2	3	9	12	29	26	44	45	21	23	10	9
1 - 3	1852	19	22	70	94	231	206	349	363	167	177	77	77
3 - 5	3211	32	39	121	165	399	358	599	634	288	311	131	134
Total	5358	54	65	202	274	667	597	1003	1054	481	517	221	223

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975

POPULATION RESIDING WITHIN SELECTED DISTANCES OF PLANTS PRODUCING VINYL CHLORIDES,* BY AGE AND SEX

Plant location, company distance from plant (In miles)	Total M+F	AGE (in years)											
		Under 1		1 to 4		5 to 14		15 to 44		45 to 64		65 and Over	
		M	F	M	F	M	F	M	F	M	F	M	F
LOUISIANA													
Plaquemine													
Dow Chemical Co. Goodyear Tire and Rubber Co.													
0 - ½	177	2	2	8	7	23	20	32	34	15	16	7	11
½ - 1	673	7	6	28	27	88	78	121	129	59	62	26	42
1 - 3	5328	53	48	229	211	701	615	962	1019	470	488	204	328
3 - 5	9237	91	85	393	370	1205	1075	1651	1782	809	853	349	574
Total	15415	153	141	658	615	2017	1788	2766	2964	1353	1419	586	955
Norco													
Taft													
Shell Oil Co Union Carbide Corp.													
0 - ½	215	3	2	11	9	29	27	42	43	18	17	6	8
½ - 1	823	10	8	41	35	111	105	161	166	67	65	22	32
1 - 3	6525	76	65	323	272	891	831	1281	1308	537	516	177	248
3 - 5	11306	132	115	555	476	1530	1452	2200	2284	922	902	305	433
Total	18869	221	190	930	792	2561	2415	3684	3801	1544	1500	510	721

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975

POPULATION RESIDING WITHIN SELECTED DISTANCES OF PLANTS PRODUCING VINYL CHLORIDES,* BY AGE AND SEX

Plant location, company distance from plant (In miles)	Total M+F	AGE (in years)											
		Under 1		1 to 4		5 to 14		15 to 44		45 to 64		65 and Over	
		M	F	M	F	M	F	M	F	M	F	M	F
MARYLAND													
Perryville													
Firestone Tire and Rubber Co.													
0 - ½													
½ - 1	2091	18	18	73	74	232	213	390	464	196	235	80	98
1 - 3	11091	123	93	365	384	865	765	4275	2285	824	528	373	211
3 - 5	9791	96	88	382	353	899	927	2018	2130	915	1028	381	574
Total	22973	237	199	820	811	1996	1905	6683	4879	1935	1791	834	883

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975.

POPULATION RESIDING WITHIN SELECTED DISTANCES OF PLANTS PRODUCING VINYL CHLORIDES,* BY AGE AND SEX

Plant location, company distance from plant (in miles)	Total M+F	AGE (in years)											
		Under 1		1 to 4		5 to 14		15 to 44		45 to 64		65 and Over	
		M	F	M	F	M	F	M	F	M	F	M	F
MASSACHUSETTS													
Fitchburg													
Leominster													
Borden Inc.													
Foster Grant Co.													
Great American Chemical Corp.													
0 - ½													
½ - 1	34395	299	287	1168	1176	3201	3086	6395	6854	3389	4084	1570	2886
1 - 3	23879	190	183	826	760	2317	2316	4513	5024	2432	2732	980	1606
3 - 5	35795	295	277	1251	1185	3946	3678	6998	7538	3683	3933	1282	1729
Total	94069	784	747	3245	3121	9464	9080	17906	19416	9504	10749	3832	6221
MASSACHUSETTS													
Indian Orchard													
Monsanto Co.													
0 - ½													
½ - 1	8258	70	73	301	269	788	772	1426	1613	970	1100	342	534
1 - 3	40671	325	308	1328	1289	4200	3911	7644	8190	4615	5116	1562	2183
3 - 5	108966	906	857	3700	3511	11391	11021	23437	22664	10398	11360	3853	5868
Total	157895	1301	1238	5329	5069	16379	15704	32507	32467	15983	17576	5757	8585

*Population figures are based on 1970 SMSA Census Tract Reports. Distribution of number of persons by age and sex within census tracts is assumed to be the same as in 1975.

POPULATION RESIDING WITHIN SELECTED DISTANCES OF PLANTS PRODUCING VINYL CHLORIDES,* BY AGE AND SEX

Plant location, company distance from plant (In miles)	Total M+F	AGE (in years)											
		Under 1		1 to 4		5 to 14		15 to 44		45 to 64		65 and Over	
		M	F	M	F	M	F	M	F	M	F	M	F
MICHIGAN													
Midland													
Dow Chemical Co.													
0 - ½	492	5	5	21	19	59	57	105	110	43	43	10	15
½ - 1	1899	21	20	81	75	227	219	405	424	165	165	38	59
1 - 3	15045	164	158	648	592	1805	1728	3219	3342	1315	1304	303	467
3 - 5	26067	282	276	1114	1034	3099	3020	5528	5838	2259	2277	522	818
Total	43503	472	459	1864	1720	5190	5024	9257	9714	3782	3789	873	1359

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975

POPULATION RESIDING WITHIN SELECTED DISTANCES OF PLANTS PRODUCING VINYL CHLORIDES,* BY AGE AND SEX

Plant location, company distance from plant (In miles)	Total M+F	AGE (in years)											
		Under 1		1 to 4		5 to 14		15 to 44		45 to 64		65 and Over	
		M	F	M	F	M	F	M	F	M	F	M	F
MISSISSIPPI													
Aberdeen													
Continental Oil Co.													
0 - ½	114	1	1	5	5	14	13	20	21	10	12	5	7
½ - 1	442	5	5	18	18	54	52	76	81	38	47	20	28
1 - 3	3504	38	36	147	142	433	406	606	642	298	373	159	224
3 - 5	6073	65	62	253	249	745	710	1040	1122	512	653	272	390
Total	10133	109	104	423	414	1246	1181	1742	1866	858	1085	456	649

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975

POPULATION RESIDING WITHIN SELECTED DISTANCES OF PLANTS PRODUCING VINYL CHLORIDES,* BY AGE AND SEX

Plant location, company distance from plant (In miles)	Total M+F	AGE (in years)											
		Under 1		1 to 4		5 to 14		15 to 44		45 to 64		65 and Over	
		M	F	M	F	M	F	M	F	M	F	M	F
NEW JERSEY													
Burlington													
Occidental Petroleum Corp. - Tenneco, Inc.													
0 - ½													
½ - 1	8159	78	73	311	322	958	854	1651	1730	772	817	234	359
1 - 3	120012	1168	1108	4712	4619	14127	13739	24546	26522	11331	11263	2830	4047
3 - 5	171215	1796	1770	7632	7478	21897	20593	36854	38790	14546	13550	2515	3794
Total	299386	3042	2951	12655	12419	36982	35186	63051	67042	26649	25630	5579	8200
Pedricktown													
B.F. Goodrich Co.													
0 - ½													
½ - 1													
1 - 3	9113	85	89	333	336	722	739	2010	1917	920	1056	389	517
3 - 5	98992	863	839	3442	3267	10335	10239	18818	20623	10792	11834	3388	4552
Total	108105	948	928	3775	3603	11057	10978	20828	22540	11712	12890	3777	5069
Passaic													
Pantasote Co.													
0 - ½	22512	240	227	918	859	2058	2119	4262	4496	2306	2493	1029	1505
½ - 1	29458	237	242	914	927	2225	2148	5372	5687	3601	4223	1546	2336
1 - 3	194601	1436	1323	5482	5316	14790	14606	36483	39699	25190	28275	8982	13019
3 - 5	269259	2153	2105	8715	8294	23936	23359	51828	56489	31501	34459	11034	15386
Total	515830	4066	3897	16029	15396	43009	42232	97945	106371	62598	69450	22591	32246

*Population figures are based on 1970 SMSA Census Tract Reports. Hooker provided number of plants producing vinyl chlorides in each area [illegible]

POPULATION RESIDING WITHIN SELECTED DISTANCES OF PLANTS PRODUCING VINYL CHLORIDES,* BY AGE AND SEX

Plant location, company distance from plant (In miles)	Total M+F	AGE (in years)											
		Under 1		1 to 4		5 to 14		15 to 44		45 to 64		65 and Over	
		M	F	M	F	M	F	M	F	M	F	M	F
NEW JERSEY													
Flemington													
Tenneco, Inc.													
0 - ½	81	1	1	3	2	9	8	15	17	9	9	3	4
½ - 1	306	2	3	10	9	36	33	58	62	33	33	12	15
1 - 3	2394	17	22	78	69	283	254	458	484	263	257	95	114
3 - 5	4153	30	39	135	121	486	444	786	846	452	450	163	201
Total	6934	50	65	226	201	814	739	1317	1409	757	749	273	334

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1973

POPULATION RESIDING WITHIN SELECTED DISTANCES OF PLANTS PRODUCING VINYL CHLORIDES,* BY AGE AND SEX

Plant location, company distance from plant (In miles)	Total M+F	AGE (in years)											
		Under 1		1 to 4		5 to 14		15 to 44		45 to 64		65 and Over	
		M	F	M	F	M	F	M	F	M	F	M	F
NEW JERSEY													
South Kearney BASF Wyandotte													
0 - ½													
½ - 1	18656	162	152	694	681	1874	1809	3573	3789	2029	2296	635	962
1 - 3	214594	2089	1978	8286	8002	20683	19751	41608	45133	21893	24970	8524	11677
3 - 5	696928	6062	5925	24503	24002	63575	62161	130766	149656	70842	85111	29429	44896
Total	930178	8313	8055	33483	32685	86132	83721	175947	198578	94764	112377	38588	57535

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975

POPULATION RESIDING WITHIN SELECTED DISTANCES OF PLANTS PRODUCING VINYL CHLORIDES,* BY AGE AND SEX

Plant location, company distance from plant (in miles)	Total M+F	AGE (in years)											
		Under 1		1 to 4		5 to 14		15 to 44		45 to 64		65 and Over	
		M	F	M	F	M	F	M	F	M	F	M	F
NEW YORK													
Hicksville													
Occidental Petroleum Co.													
0 - ½	5900	40	34	159	144	567	537	1076	1152	801	811	225	354
½ - 1	20702	152	137	602	587	2571	2435	4058	4493	2353	2252	384	678
1 - 3	143760	945	922	4501	4176	17738	16848	29040	31886	16770	15006	2147	3781
3 - 5	215230	1401	1314	6417	5953	26447	24805	42978	48503	24623	22635	3972	6182
Total	385592	2538	2407	11679	10860	47323	44625	77152	86034	44547	40704	6728	10995
NEW YORK													
Niagara Falls													
Goodyear Tire and Rubber Co.													
0 - ½	2033	20	14	72	60	265	238	419	434	226	201	40	44
½ - 1	6604	41	43	192	183	652	686	1229	1340	861	887	233	257
1 - 3	67154	561	485	2201	2057	6665	6406	12182	13776	7724	8703	2765	3629
3 - 5	23913	200	194	826	737	2415	2284	4222	4772	2488	2827	1145	1803
Total	99704	822	736	3291	3037	9997	9614	18052	20322	11299	12618	4183	5733

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975

POPULATION RESIDING WITHIN SELECTED DISTANCES OF PLANTS PRODUCING VINYL CHLORIDES,* BY AGE AND SEX

Plant location, company distance from plant (In miles)	Total M+F	AGE (in years)											
		Under 1		1 to 4		5 to 14		15 to 44		45 to 64		65 and Over	
		M	F	M	F	M	F	M	F	M	F	M	F
OHIO													
Ashtabula													
General Tire Co.													
0 – ½	434	4	4	15	16	44	43	81	88	47	49	18	25
½ – 1	1671	15	15	59	61	168	165	310	339	182	189	70	98
1 – 3	13239	118	121	472	480	1338	1305	2464	2673	1448	1490	556	774
3 – 5	22937	202	211	809	837	2298	2279	4232	4670	2488	2603	956	1352
Total	38281	339	351	1355	1394	3848	3792	7087	7770	4165	4331	1600	2249
Huron													
SCM Corporation													
0 – ½	98	2		3	3	12	11	20	21	10	9	3	4
½ – 1	380	4	3	13	14	48	42	77	80	38	36	11	14
1 – 3	2988	28	28	100	101	378	332	609	628	299	286	90	109
3 – 5	5175	47	47	173	177	649	580	1045	1097	514	502	154	190
Total	8641	81	78	289	295	1087	965	1751	1826	861	833	258	317

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975

POPULATION RESIDING WITHIN SELECTED DISTANCES OF PLANTS PRODUCING VINYL CHLORIDES,* BY AGE AND SEX

Plant location, company distance from plant (In miles)	Total M+F	AGE (in years)											
		Under 1		1 to 4		5 to 14		15 to 44		45 to 64		65 and Over	
		M	F	M	F	M	F	M	F	M	F	M	F
OHIO													
Avon Lake													
B.F. Goodrich Co.													
0 - ½	827	8	8	35	31	93	89	155	158	92	102	24	32
½ - 1	5511	48	47	211	221	774	760	1134	1243	454	442	67	110
1 - 3	16398	152	137	670	585	2195	1952	3218	3416	1506	1532	421	614
3 - 5	8022	79	78	325	351	934	942	1582	1667	778	856	198	232
Total	30758	287	270	1241	1188	3996	3743	6089	6484	2830	2932	710	988
Painesville													
Robintech, Inc. Uniroyal, Inc.													
0 - ½													
½ - 1													
1 - 3	21550	180	187	730	746	2120	2099	4110	4418	2231	2509	870	1350
3 - 5	16434	161	155	700	629	2039	1910	3325	3902	1352	1413	357	491
Total	37984	341	342	1430	1375	4159	4009	7435	8320	3583	3922	1227	1841

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1974

POPULATION RESIDING WITHIN SELECTED DISTANCES OF PLANTS PRODUCING VINYL CHLORIDES,* BY AGE AND SEX

Plant location, company distance from plant (in miles)	Total M+F	AGE (in years)											
		Under 1		1 to 4		5 to 14		15 to 44		45 to 64		65 and Over	
		M	F	M	F	M	F	M	F	M	F	M	F
OKLAHOMA													
Oklahoma City													
Continental Oil Co.													
0 - ½													
½ - 1													
1 - 3	25526	287	261	1046	982	2792	2604	6275	6036	2130	2128	392	593
3 - 5	73581	703	657	2780	2624	8838	8600	16007	17624	6555	6154	1305	1734
Total	99107	990	918	3826	3606	11630	11204	22282	23660	8685	8282	1697	2327

*Population figures based on 1970 SMSA Census Tract Report. [illegible] and population of plants [illegible] Bureau of the Census [illegible]

POPULATION RESIDING WITHIN SELECTED DISTANCES OF PLANTS PRODUCING VINYL CHLORIDES,* BY AGE AND SEX

Plant location, company distance from plant (in miles)	Total M+F	AGE (in years)											
		Under 1		1 to 4		5 to 14		15 to 44		45 to 64		65 and Over	
		M	F	M	F	M	F	M	F	M	F	M	F
PENNSYLVANIA													
Pottstown													
Firestone Tire and Rubber Co.													
0 - ½													
½ - 1	2447	21	25	79	80	235	232	489	478	299	304	97	108
1 - 3	36121	283	295	1187	1211	3513	3359	7100	7210	3964	4289	1554	2156
3 - 5	30382	264	247	1062	993	3090	2851	6615	6550	3180	3235	1001	1294
Total	68950	568	567	2328	2284	6838	6442	14204	14238	7443	7828	2652	3558

*Population figures are based on 1970 SMSA Census Tract Report. The location and number of plants producing vinyl chlorides was surveyed during July 1975

POPULATION RESIDING WITHIN SELECTED DISTANCES OF PLANTS PRODUCING VINYL CHLORIDES.* BY AGE AND SEX

Plant location, company distance from plant (In miles)	Total M+F	AGE (in years)											
		Under 1		1 to 4		5 to 14		15 to 44		45 to 64		65 and Over	
		M	F	M	F	M	F	M	F	M	F	M	F
PUERTO RICO													
Playa Guayanilla													
PPG Industries, Inc.													
0 - ½	202	3	2	10	10	28	27	38	41	15	14	7	7
½ - 1	780	10	9	40	40	107	105	147	158	59	56	26	23
1 - 3	6173	76	72	315	314	855	825	1171	1248	466	438	209	184
3 - 5	10692	131	124	541	548	1469	1441	2011	2182	800	765	358	322
Total	17847	220	207	906	912	2459	2398	3367	3629	1340	1273	600	536

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975

POPULATION RESIDING WITHIN SELECTED DISTANCES OF PLANTS PRODUCING VINYL CHLORIDES,* BY AGE AND SEX

Plant location, company distance from plant (In miles)	Total M+F	AGE (in years)											
		Under 1		1 to 4		5 to 14		15 to 44		45 to 64		65 and Over	
		M	F	M	F	M	F	M	F	M	F	M	F
TEXAS													
Deer Park Pasadena Diamond Shamrock Corp. Ethyl Corp. Tenneco, Inc. Shell Oil Co.													
0 - ½													
½ - 1	12820	142	128	571	522	1732	1686	3103	3225	833	704	69	105
1 - 3	32151	377	335	1448	1345	4053	3819	7687	7860	2349	2137	322	419
3 - 5	86508	782	785	3053	3041	9628	9148	19573	20502	8454	8202	1312	2028
Total	131479	1301	1248	5072	4908	15413	14653	30363	31587	11636	11043	1703	2552
Freeport Dow Chemical Corp.													
0 - ½													
½ - 1													
1 - 3	4746	53	60	234	214	474	402	1042	1012	501	451	139	164
3 - 5	15879	193	155	723	602	1734	1654	3452	3504	1544	1419	376	523
Total	20625	246	215	957	816	2208	2056	4494	4516	2045	1870	515	687
Texas City GAF Corporation Monsanto Co. Union Carbide Corp.													
0 - ½	3440	30	39	126	133	351	353	630	733	408	382	118	137
½ - 1													
1 - 3	19460	174	160	673	675	2060	2021	4125	4396	2135	2095	398	548
3 - 5	34751	291	275	1224	1185	4117	3912	6972	7711	3655	3550	852	1007
Total	57651	495	474	2023	1993	6528	6286	11727	12840	6198	6027	1368	1692

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975

POPULATION RESIDING WITHIN SELECTED DISTANCES OF PLANTS
PRODUCING VINYL CHLORIDES,* BY AGE AND SEX

Plant location, company distance from plant (In miles)	Total M+F	AGE (in years)											
		Under 1		1 to 4		5 to 14		15 to 44		45 to 64		65 and Over	
		M	F	M	F	M	F	M	F	M	F	M	F
WEST VIRGINIA													
Point Pleasant													
Pantasote Co.													
0 - ½	263	2	2	7	7	25	27	51	54	28	31	12	17
½ - 1	1007	6	8	27	27	94	105	196	207	106	122	45	64
1 - 3	7984	53	65	217	209	747	824	1561	1636	846	961	363	502
3 - 5	13836	91	113	372	366	1284	1440	2680	2857	1454	1679	623	877
Total	23090	152	188	623	609	2150	2396	4488	4754	2434	2793	1043	1460

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 197[illegible]

POPULATION RESIDING WITHIN SELECTED DISTANCES OF PLANTS PRODUCING VINYL CHLORIDES,* BY AGE AND SEX

Plant location, company distance from plant (In miles)	Total M+F	AGE (in years)											
		Under 1		1 to 4		5 to 14		15 to 44		45 to 64		65 and Over	
		M	F	M	F	M	F	M	F	M	F	M	F
WEST VIRGINIA													
South Charleston													
Union Carbide Corp.													
0 - ½													
½ - 1	5698	47	78	184	148	511	475	1042	1280	591	731	241	370
1 - 3	40685	285	296	1150	1053	3757	3535	7379	8653	4616	5602	1591	2768
3 - 5	53432	375	385	1465	1458	4742	4617	10027	11786	5981	6800	2309	3487
Total	99815	707	759	2799	2659	9010	8627	18448	21719	11188	13133	4141	6625

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975.

V. B. POPULATION IN EACH DIRECTION FROM EACH PLANT

CALIFORNIA
Carson
B. F. Goodrich Co.
Stauffer Chemical Co.

DISTANCE FROM PLANT (in miles)	POPULATION RESIDING WITHIN VARIOUS DIRECTIONS OF PLANTS PRODUCING VINYL CHLORIDES*																
	TOTAL	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0 – ½	16541	1544	1030					1662	1662	1662	1662	1662	2466	617		1030	1544
½ – 1	259309	3776		16582	19813	24412	21394	28817	7070	9433	20187	18361	24557	26683	18381	11960	7883
1 – 3	405461			11226	43591	35362	39679	68956	1268	1751	34037	25451	33176	46234	51061	13669	
3 – 5																	
TOTAL	681311	5320	1030	27808	63404	59774	61073	99435	10000	12846	55886	45474	60199	73534	69442	26659	9427

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975.

V. B-1. a/

CALIFORNIA
Saugus
Keysor-Century Corp.

DISTANCE FROM PLANT (in miles)	POPULATION RESIDING WITHIN VARIOUS DIRECTIONS OF PLANTS PRODUCING VINYL CHLORIDES*																
	TOTAL	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0 – ½																	
½ – 1	10935	1094	1094	1093						2186	2186	1094	1094				1094
1 – 3																	
3 – 5	12029			51	204	204	51	2617	2990	1561	1257	884	884	884	442		
TOTAL	22964	1094	1094	1144	204	204	51	2617	2990	3747	3443	1978	1978	884	442		1094

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975.

DELAWARE

Delaware City
Diamond Shamrock Corp.
Stauffer Chemical Co.

DISTANCE FROM PLANT (in miles)	POPULATION RESIDING WITHIN VARIOUS DIRECTIONS OF PLANTS PRODUCING VINYL CHLORIDES*																
	TOTAL	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0 – ½																	
½ – 1																	
1 – 3	6970	670	1339				607	1803	152	152	303	303	152	152	334	334	669
3 – 5	9218	2732														3243	3243
TOTAL	16188	3402	1339				607	1803	152	152	303	303	152	152	334	3577	3912

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975.

FLORIDA

Pace
Air Products, Inc.

DISTANCE FROM PLANT (in miles)	POPULATION RESIDING WITHIN VARIOUS DIRECTIONS OF PLANTS PRODUCING VINYL CHLORIDES*																
	TOTAL	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0 – ½																	
½ – 1																	
1 – 3																	
3 – 5	7071	708		707	707	707	707	707	707						707	707	707
TOTAL	7071	708		707	707	707	707	707	707						707	707	707

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975.

ILLINOIS

Henry
B.F. Goodrich Co.

DISTANCE FROM PLANT (in miles)	POPULATION RESIDING WITHIN VARIOUS DIRECTIONS OF PLANTS PRODUCING VINYL CHLORIDES*																
	TOTAL	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0 – ½	37								2	2		33					
½ – 1	146								10	10		126					
1 – 3	1161								76	76		1009					
3 – 5	2013								132	132		1749					
TOTAL	3357								220	220		2917					

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975.

ILLINOIS

Illiopolis
Borden, Inc.

DISTANCE FROM PLANT (in miles)	POPULATION RESIDING WITHIN VARIOUS DIRECTIONS OF PLANTS PRODUCING VINYL CHLORIDES*																
	TOTAL	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0 – ½	30			1	3	23	3										
½ – 1	117			4	13	87	13										
1 – 3	922			34	102	683	103										
3 – 5	1597			59	177	1183	178										
TOTAL	2666			98	295	1976	297										

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975.

KENTUCKY

Calvert City
Air Products, Inc.
B.F. Goodrich Co.

DISTANCE FROM PLANT (in miles)	POPULATION RESIDING WITHIN VARIOUS DIRECTIONS OF PLANTS PRODUCING VINYL CHLORIDES*																
	TOTAL	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0 - ½	102																
½ - 1	398								31	40	31						
1 - 3	3134								119	160	119						
3 - 5	5436								940	1254	940						
									1631	2174	1631						
TOTAL	9070								2721	3628	2721						

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975.

KENTUCKY

Louisville
B. F. Goodrich Co.

DISTANCE FROM PLANT (in miles)	POPULATION RESIDING WITHIN VARIOUS DIRECTIONS OF PLANTS PRODUCING VINYL CHLORIDES*																
	TOTAL	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0 – ½																	
½ – 1	6315	1263	1895	1894	1263												
1 – 3	111146	13402	11846	14610	15926	4569	7103	5086	8774	10790	8216	9386					1438
3 – 5	146000	12392	16832	15529	19788	23942	13474	22289	10101	4324	2568		481	481	481	481	2837
TOTAL	263461	27057	30573	32033	36977	28511	20577	27375	18875	15114	10784	9386	481	481	481	481	4275

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975.

LOUISIANA

Baton Rouge
Allied Chemical Co.
Ethyl Corp.

DISTANCE FROM PLANT (in miles)	POPULATION RESIDING WITHIN VARIOUS DIRECTIONS OF PLANTS PRODUCING VINYL CHLORIDES*																
	TOTAL	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0 – ½																	
½ – 1																	
1 – 3	25615				5577	5577	6102	3519	1075	538			538				
3 – 5	54193	1383	1729	2454	3649	4844	11046	17867	8138	1691	522	696	174	1075	538	538	538
TOTAL	79808	1383	1729	2454	9226	10421	17148	21386	9213	2229	522	696	712	1075	538	538	538

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975.

LOUISIANA
Geismar

Allied Chemical Corp.
Borden, Inc.

Monochem Inc.
Vulcan Materials, Co.

DISTANCE FROM PLANT (in miles)	POPULATION RESIDING WITHIN VARIOUS DIRECTIONS OF PLANTS PRODUCING VINYL CHLORIDES*																
	TOTAL	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0 – ½	62							4		39					19		
½ – 1	233							16		147					70		
1 – 3	1852							125		1165					562		
3 – 5	3211							213		2027					971		
TOTAL	5358							358		3378					1622		

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975.

LOUISIANA

Westlake
Continental Oil Co.
PPG Industries, Inc.

DISTANCE FROM PLANT (in miles)	POPULATION RESIDING WITHIN VARIOUS DIRECTIONS OF PLANTS PRODUCING VINYL CHLORIDES*																
	TOTAL	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0 – ½ ½ – 1 1 – 3 3 – 5	11601 44100	1624	1624	1624	1216 7836	506 11299	11586	4814	1651	1238	5270	204	152	2701 50	1350	450	506
TOTAL	55701	1624	1624	1624	9052	11805	11586	4814	1651	1238	5270	204	152	2751	1350	450	506

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975.

LOUISIANA

Norco
Taft
Shell Oil Co.
Union Carbide Co.

DISTANCE FROM PLANT (in miles)	POPULATION RESIDING WITHIN VARIOUS DIRECTIONS OF PLANTS PRODUCING VINYL CHLORIDES*																
	TOTAL	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0 – ½	215			21	22	21	22	21				22	21	22	21	22	
½ – 1	823			83	82	83	82	83				82	82	82	82	82	
1 – 3	6525			653	652	653	652	653				652	653	652	653	652	
3 – 5	11306			1131	1131	1130	1131	1130				1131	1130	1131	1130	1131	
TOTAL	18869			1888	1887	1887	1887	1887				1887	1886	1887	1886	1887	

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975.

LOUISIANA

Plaquemine
Dow Chemical Co.
Goodyear Tire and Rubber Co.

DISTANCE FROM PLANT (in miles)	POPULATION RESIDING WITHIN VARIOUS DIRECTIONS OF PLANTS PRODUCING VINYL CHLORIDES*																
	TOTAL	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0 – ½	177								96	64							17
½ – 1	673								362	244							67
1 – 3	5328								2872	1930							526
3 – 5	9237								4978	3346							913
TOTAL	15415								8308	5584							1523

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975.

MARYLAND

Perryville
Firestone Tire & Rubber Co.

DISTANCE FROM PLANT (in miles)	POPULATION RESIDING WITHIN VARIOUS DIRECTIONS OF PLANTS PRODUCING VINYL CHLORIDES*																
	TOTAL	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0 – ½ ½ – 1 1 – 3 3 – 5	2091 11091 9791	584	583	583	583	583	583	583	209 583	1673	209						
TOTAL	22973	584	583	583	583	583	583	583	792	1673	209		4895	4896	1578	2687	2161
													4895	4896	1578	2687	2161

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975.

MASSACHUSETTS

Indian Orchard
Monsanto Co.

DISTANCE FROM PLANT (in miles)	POPULATION RESIDING WITHIN VARIOUS DIRECTIONS OF PLANTS PRODUCING VINYL CHLORIDES*															
	TOTAL	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0 – ½	8258					826	1651	1651	826	1652	1652						
½ – 1	40671							1678	3206	4570	6992	5243	5787	9051	1776	1184	1184
1 – 3	108966	1758	3516	5274	5274	1758			2759	6253	11225	24921	11730	8196	9350	11558	5394
3 – 5																	
TOTAL	157895	1758	3516	5274	5274	2584	1651	3329	6791	12475	19869	30164	17517	17247	11126	12742	6578

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975.

MICHIGAN

Midland
Dow Chemical Co.

DISTANCE FROM PLANT (in miles)	POPULATION RESIDING WITHIN VARIOUS DIRECTIONS OF PLANTS PRODUCING VINYL CHLORIDES*																
	TOTAL	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0 – ½	492					49			46						119	159	119
½ – 1	1899					188			176						460	614	461
1 – 3	15045					1486			1394						3650	4866	3649
3 – 5	26067					2575			2416						6323	8430	6323
TOTAL	43503					4298			4032						10552	14069	10552

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975.

MISSISSIPPI

Aberdeen
Continental Oil Co.

DISTANCE FROM PLANT (in miles)	POPULATION RESIDING WITHIN VARIOUS DIRECTIONS OF PLANTS PRODUCING VINYL CHLORIDES*																
	TOTAL	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0 – ½	114			114													
½ – 1	442			442													
1 – 3	3504			3504													
3 – 5	6073			6073													
TOTAL	10133			10133													

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975.

NEW JERSEY

Pedricktown
B. F. Goodrich Co.

DISTANCE FROM PLANT (in miles)	POPULATION RESIDING WITHIN VARIOUS DIRECTIONS OF PLANTS PRODUCING VINYL CHLORIDES*																
	TOTAL	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0 – ½																	
½ – 1																	
1 – 3	9113	1825	1217							626	626	418	418		398	1195	1195	1195
3 – 5	98992	9905	22757	1840							1287	4805	6651	7601	14804	13596	7958	7788
TOTAL	108105	11730	23974	1840					626	1913	5223	7069	7601	15202	14791	9153	8983	

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975.

NEW JERSEY

Passaic
Pantosote Co.

DISTANCE FROM PLANT (in miles)	POPULATION RESIDING WITHIN VARIOUS DIRECTIONS OF PLANTS PRODUCING VINYL CHLORIDES*																
	TOTAL	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0 – ½	22512	3289		1095	1095	1095	1490	1125	1125	1125	1125	666	666	1998	1998	1332	3288
½ – 1	29458	1476		2522	4975	1472		329	2306	1393	1470	1470	2205	5607	2757		1476
1 – 3	194601	13323	14748	13523	14323	18809	12158	7895	5666	8866	6293	11333	11869	10343	11633	20796	13023
3 – 5	269259	17158	13759	15863	18180	9516	10260	10626	14198	11406	12525	16183	11993	8101	16104	34937	48450
TOTAL	515830	35246	28507	33003	38573	30892	23908	19975	23295	22790	21413	29652	26733	26049	32492	57065	66237

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975.

NEW JERSEY

Flemington
Tenneco, Inc.

DISTANCE FROM PLANT (in miles)	POPULATION RESIDING WITHIN VARIOUS DIRECTIONS OF PLANTS PRODUCING VINYL CHLORIDES*																
	TOTAL	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0 – ½	81					81											
½ – 1	306					306											
1 – 3	2394					2394											
3 – 5	4153					4153											
TOTAL	6934					6934											

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975.

NEW JERSEY

South Kearney
BASF WYANDOTTE

DISTANCE FROM PLANT (in miles)	POPULATION RESIDING WITHIN VARIOUS DIRECTIONS OF PLANTS PRODUCING VINYL CHLORIDES*																
	TOTAL	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0 – ½																	
½ – 1	18656	406					950	2079	2454	2079	1193	728	728	728	2925	1137	3249
1 – 3	214594	14688	3969	1330	5125	805	402	402	541	721	8231	27753	36218	27255	36692	30415	20047
3 – 5	696928	65242	5231	4979	13	61616	99149	62844	40002	2963	74	55448	103386	82172	61060	27088	25661
TOTAL	930178	80336	9200	6309	5138	62421	100501	65325	42997	5763	9498	83929	140332	110155	100677	58640	48957

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975.

NEW YORK

Hicksville
Occidental Petroleum Corp.

DISTANCE FROM PLANT (in miles)	POPULATION RESIDING WITHIN VARIOUS DIRECTIONS OF PLANTS PRODUCING VINYL CHLORIDES*																
	TOTAL	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0 – ½	5900	590	590	590				590	590	590	590	590				590	590
½ – 1	20702	1668	2780				752	2256	3008	1504	762	1524	2287	2287	762		1112
1 – 3	143760	7227	9899	10618	8699	11368	5407	2585	5457	11698	15324	10832	13604	12010	8617	4762	5653
3 – 5	215230	2998	15028	4725	8417	4254	851	17531	28244	29713	19372	33458	11547	13742	16097	5735	3518
TOTAL	385592	12483	28297	15933	17116	15622	7010	22962	37299	43505	36048	46404	27438	28039	25476	11087	10873

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975.

NEW YORK

Niagara Falls
Goodyear Tire and Rubber Co.

DISTANCE FROM PLANT (in miles)	POPULATION RESIDING WITHIN VARIOUS DIRECTIONS OF PLANTS PRODUCING VINYL CHLORDIES*																
	TOTAL	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0 – ½	2033				203	204	203	204				203	204	203	203	203	203
½ – 1	6604				1421	1065	1066	305	611			305					
1 – 3	67154	1674	3347	3347	3370	9236	2410	2409		1221	610		1465	18511	13692	6169	1524
3 – 5	23913							2860	2861					5177	3535	9480	
TOTAL	99704	1674	3347	3347	4994	10505	3679	5778	3472	1221	610	508	1669	23891	17430	15852	1727

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975.

OHIO

Ashtabula
General Tire Co.

DISTANCE FROM PLANT (in miles)	POPULATION RESIDING WITHIN VARIOUS DIRECTIONS OF PLANTS PRODUCING VINYL CHLORIDES*																
	TOTAL	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0 – ½	434				30	30	62	62	91	44	51	51	13				
½ – 1	1671				118	118	236	236	353	167	197	197	49				
1 – 3	13239				934	934	1868	1868	2801	1324	1560	1560	390				
3 – 5	22937				1618	1618	3237	3237	4855	2293	2702	2702	675				
TOTAL	38281				2700	2700	5403	5403	8100	3828	4510	4510	1127				

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975.

OHIO

Huron
SCM Corporation

DISTANCE FROM PLANT (in miles)	POPULATION RESIDING WITHIN VARIOUS DIRECTIONS OF PLANTS PRODUCING VINYL CHLORIDES*																
	TOTAL	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0 - ½	98							19	19	10	10	10	10	10	10		
½ - 1	380							76	76	38	38	38	38	38	38		
1 - 3	2988							597	597	299	299	299	299	299	299		
3 - 5	5175							1034	1034	517	518	518	518	518	518		
TOTAL	8641							1726	1726	864	865	865	865	865	865		

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975.

OHIO

Avon Lake
B. F. Goodrich Co.

DISTANCE FROM PLANT (in miles)	POPULATION RESIDING WITHIN VARIOUS DIRECTIONS OF PLANTS PRODUCING VINYL CHLORIDES*																
	TOTAL	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0 - ½	827						82	82	82	83	83	83	83	83	83	83	
½ - 1	5511		1102	2205	1102	1102											
1 - 3	16398		288	1733	1472	1214	2016	1068	2165	2273	908		652	1957	652		
3 - 5	8022												4266	3756			
TOTAL	30758		1390	3938	2574	2316	2098	1150	2247	2356	991	83	5001	5796	735	83	

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975.

OHIO

Painesville
Robintech, Inc.
Uniroyal, Inc.

DISTANCE FROM PLANT (in miles)	POPULATION RESIDING WITHIN VARIOUS DIRECTIONS OF PLANTS PRODUCING VINYL CHLORIDES*															
	TOTAL	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0 - ½																	
½ - 1																	
1 - 3	21550			294	294	294	651	1364	1364	5760	4947	2009	2822	1751			
3 - 5	16434			304	1524	1695	1110				5139	582	4361	1719			
TOTAL	37984			598	1818	1989	1761	1364	1364	5760	10086	2591	7183	3470			

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975.

OKLAHOMA

Oklahoma City
Continental Oil Co.

DISTANCE FROM PLANT (in miles)	POPULATION RESIDING WITHIN VARIOUS DIRECTIONS OF PLANTS PRODUCING VINYL CHLORDIES*																
	TOTAL	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0 – ½																	
½ – 1																	
1 – 3	25526	1808	6815	558	558	186	371	371	371	371	371	371	371	371	1041	4962	6630
3 – 5	73581	12445	8205	6243	404	540	760	534	534	356	5035	3569	5219	7803	3799	8084	10051
TOTAL	99107	14253	15020	6801	962	726	1131	905	905	727	5406	3940	5590	8174	4840	13046	16681

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975.

PENNSYLVANIA

Pottstown
Firestone Tire & Rubber Co.

DISTANCE FROM PLANT (in miles)	POPULATION RESIDING WITHIN VARIOUS DIRECTIONS OF PLANTS PRODUCING VINYL CHLORIDES*																
	TOTAL	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0 – ½	2447		489	489	489	490	245	245									
½ – 1	36121	1084	271			359	1438	1438	1015	985	985	976	3044	7230	11048	5164	1084
1 – 3	30382	2425	2527	1263	785	982	196	4593	2578	1228	921	348	2437	5344	1420	1238	2097
3 – 5																	
TOTAL	68950	3509	3287	1752	1274	1831	1879	6276	3593	2213	1906	1324	5481	12574	12468	6402	3181

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975.

PUERTO RICO

Playa Guayanilla
PPG Industries, Inc.

DISTANCE FROM PLANT (in miles)	POPULATION RESIDING WITHIN VARIOUS DIRECTIONS OF PLANTS PRODUCING VINYL CHLORIDES*																
	TOTAL	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0 – ½	202	21	20	6	4	24							14	11	20	28	54
½ – 1	780	83	76	24	16	93							53	41	76	110	208
1 – 3	6173	650	600	188	132	730							420	328	622	864	1639
3 – 5	10692	1124	1041	328	227	1263							720	567	1080	1501	2841
TOTAL	17847	1878	1737	546	379	2110							1207	947	1798	2503	4742

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975.

TEXAS

Deer Park
Pasadena
Diamond Shamrock Corp.
Ethyl Corp.
Shell Oil Co.
Tenneco, Inc.

DISTANCE FROM PLANT (in miles)	POPULATION RESIDING WITHIN VARIOUS DIRECTIONS OF PLANTS PRODUCING VINYL CHLORIDES*																
	TOTAL	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0 – ½																	
½ – 1	12820						1282	3846	3846	3846							
1 – 3	32151	478	478		39	52	39			861	5462	6622	12629	4716	137	160	478
3 – 5	86508	174					496	4426	2620	236	316	22537	24964	11451	9185	9841	262
TOTAL	131479	652	478		39	52	1817	8272	6466	4943	5778	29159	37593	16167	9322	10001	740

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975.

TEXAS

Freeport
Dow Chemical Corp.

DISTANCE FROM PLANT (in miles)	POPULATION RESIDING WITHIN VARIOUS DIRECTIONS OF PLANTS PRODUCING VINYL CHLORIDES*																
	TOTAL	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0 – ½																	
½ – 1																	
1 – 3	4746	24	24	24			48	48		1802	1352	1352		48			24
3 – 5	15879	940							1476	5905					3309	3309	940
TOTAL	20625	964	24	24			48	48	1476	7707	1352	1352		48	3309	3309	964

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975.

TEXAS
Texas City
GAF Corp. Union Carbide
Monsanto Co. Corp.

DISTANCE FROM PLANT (in miles)	POPULATION RESIDING WITHIN VARIOUS DIRECTIONS OF PLANTS PRODUCING VINYL CHLORIDES*															
	TOTAL	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0 – ½	3440	344	688	688	344	344	344	344									344
½ – 1																	
1 – 3	19460	4179	4178						468	468	468	468	468	468	1404	4965	1926
3 – 5	34751	2326	12897	422									622	2458	859	11223	3944
TOTAL	57651	6849	17763	1110	344	344	344	344	468	468	468	468	1090	2926	2263	16188	6214

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975.

WEST VIRGINIA

Point Pleasant
Pantasote Co.

DISTANCE FROM PLANT (in miles)	POPULATION RESIDING WITHIN VARIOUS DIRECTIONS OF PLANTS PRODUCING VINYL CHLORIDES*																
	TOTAL	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	W'	W	WNW	NW	NNW
0 – ½	263		2	2	6	6	2	2	11	95	18	51	51	2	5	5	5
½ – 1	1007		8	8	16	16	8	8	41	369	68	199	199	7	20	20	20
1 – 3	7984		64	64	128	128	64	64	322	2917	537	1584	1584	53	158	158	159
3 – 5	13836		111	111	223	223	111	111	557	5053	930	2744	2744	92	275	275	276
TOTAL	23090		185	185	373	373	185	185	931	8434	1553	4578	4578	154	458	458	460

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975.

WEST VIRGINIA

South Charleston
Union Carbide Corp.

DISTANCE FROM PLANT (in miles)	POPULATION RESIDING WITHIN VARIOUS DIRECTIONS OF PLANTS PRODUCING VINYL CHLORIDES*															
	TOTAL	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0 – ½																	
½ – 1	5698				259	1812	518	311	311	311	933	1243					
1 – 3	4[illegible]5	351	701	1587	4791	4909	8804	4574	1713	1142	1142	4544	3434	2991			
3 – 5	3432	754	1132	1885	723	5552	15131	7369	2242			3237	7009	4014	1983	1029	1372
TOTAL	99815	1105	1833	3472	5773	12273	24453	12254	4266	1453	2075	9024	10443	7007	1983	1029	1372

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975.

V. C. POPULATION WITHIN 5 MILES OF TWO PLANTS

BURLINGTON, NJ

Census tracts within 5 miles of the Tenneco plant but not within 5 miles of the Occidental plant

DISTANCE FROM PLANT (in miles)	POPULATION RESIDING WITHIN VARIOUS DIRECTIONS OF PLANTS PRODUCING VINYL CHLORIDES*																
	TOTAL	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0 – ½	4993									1498	1997	1498					
½ – 1	36084	345							8912	9978	3429	1520	2484	310	600	3435	5071
1 – 3	98547	734						878	12000	8381	3273	12447	5306	12814	8174	29444	5096
TOTAL	139624	1079						878	20912	19857	8699	15465	7790	13124	8774	32879	10167

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975.

V. C-1a

Census tracts within 5 miles of the Occidental plant but not within 5 miles of the Tenneco plan

DISTANCE FROM PLANT (in miles)	POPULATION RESIDING WITHIN VARIOUS DIRECTIONS OF PLANTS PRODUCING VINYL CHLORIDES*															
	TOTAL	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0 – ½																	
½ – 1																	
1 – 3	29654	7721	2525	1483	2499	2302	794	794	198							4723	6615
3 – 5	59704	26001	758	758	190										2951	12934	16112
TOTAL	89358	33722	3283	2241	2689	2302	794	794	198						2951	17657	22727

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975.

Census tracts within 5 miles of both plants

Census Tract Number	Distance from: (Miles)		Directions from the Plants															
	Tenneco Plant	Hooker Plant	Total	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
1005	3-5		3166		3166														
		½-1	3166											949	950	950	317		
1003.02	1-3		5366	1073	1073	1610													
		3-5	5366											1610	3756			537	1073
1003.5	1-3		8801	3521	2640														
		3-5	8801												4401	4400			2640
1007	1-3		4113			4113													
		1-3	4113												3702	411			
1006	1-3		4806			4806													
		1-3	4806											2884	1922				
7012.02	1-3		6471					6471											
		3-5	6471										3235	3236					
7012.03	1-3		2339				468	1871											
		1-3	2339									936	1403						
7012.01	1-3		3181					1590	1591										
		3-5	3181									636	2545						
7011.01	1-3		5807						580	4647	580								
		3-5	5807									1742	2323	1742					

V. C-10

Census tracts within 5 miles of both plants

Census Tract Number	Distance from: (Miles)		Directions from the Plants																
	Tenneco Plant	Hooker Plant	Total	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
1004.03	3-5		2835		1418	1417													
		1-3	2835	567	284													850	1134
1003.03	3-5		7179		4307	2872													
		1-3	7179													4307	2872		
7011.03	3-5		3376			675	1689	1012											
		1-3	3376						338	1013	1013	1012							
1003.04	3-5		2553	2553															
		3-5	2553													1787	766		
1004.01	3-5		8982	3592	5390														
		3-5	8982														4491	4491	
7011.02	3-5		1429					429	1000										
		3-5	1429							286	1000	143							
		TOTAL	70404																

Census tracts within 5 miles of both plants

Census Tract Number	Distance from (Miles)		Directions from the Plants															
	Tenneco Plant	Hooker Plant	Total	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
1004.03	3-5		2835		1418	1417												850	1134
		1-3	2835	567	284														
1003.03	3-5		7179		4307	2872													
		1-3	7179													4307	2872		
7011.03	3-5		3376			675	1689	1012											
		1-3	3376						338	1013	1013	1012							
1003.04	3-5		2553	2553															
		3-5	2553													1787	766		
1004.01	3-5		8982	3592	5390														
		3-5	8982														4491	4491	
7011.02	3-5		1429					429	1000										
		3-5	1429							286	1000	143							
		TOTAL	70404																

V. C-le

Census tracts within 5 miles of both plants

Census Tract Number	Distance from: (Miles)		Directions from the Plants																
	Tenneco Plant	Hooker Plant	Total	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
1005	3-5		3166		3166														
		½-1	3166																
1003.02	1-3		5366	1073	1073	1610								949	950	950	317		
		3-5	5366																
1003.5	1-3		8801	3521	2640									1610	3756			537	1073
		3-5	8801																
1007	1-3		4113			4113									4401	4400			2640
		1-3	4113																
1006	1-3		4806			4806									3702	411			
		1-3	4806																
7012.02	1-3		6471											2884	1922				
		3-5	6471					6471											
7012.03	1-3		2339										3235	3236					
		1-3	2339				468	1871											
7012.01	1-3		3181									936	1403						
		3-5	3181					1590	1591										
7011.01	1-3		5807									636	2545						
		3-5	5807						580	4647	580								
												1742	2323	1742					

V. D. POPULATION WITHIN 5 MILES OF THREE PLANTS

MASSACHUSETTS

Fitchburg
Leominster

Census tracts within 5 miles of Great American but not within 5 miles of Foster Grant or Borden

DISTANCE FROM PLANT (in miles)	POPULATION RESIDING WITHIN VARIOUS DIRECTIONS OF PLANTS PRODUCING VINYL CHLORIDES*															
	TOTAL	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0 – ½																	
½ – 1																	
1 – 3																	
3 – 5	10569	923	308									855	2247	2247	2143	923	923
TOTAL	10569	923	308									855	2247	2247	2143	923	923

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975.

Census tracts within 5 miles of Borden but not within 5 miles of Great American or Foster Grant

DISTANCE FROM PLANT (in miles)	POPULATION RESIDING WITHIN VARIOUS DIRECTIONS OF PLANTS PRODUCING VINYL CHLORIDES*															
	TOTAL	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
0 – ½ ½ – 1 1 – 3 3 – 5	6095					1829	1828	1828	610								
TOTAL	6095					1829	1828	1828	610								

*Population figures are based on 1970 SMSA Census Tract Reports. The location and number of plants producing vinyl chlorides was surveyed during July 1975.

V. D-1b

Census tracts within 5 miles of Great American and Foster Grant but not within 5 miles of Borden

Census Tract Number	Distance from: (Miles)		Directions from the Plants															
	Great American	Foster Grant	Total	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
7105	1-3		3823													1911	1912		
		3-5	3823														1911	1912	
7108	1-3		5060	504														2024	2532
		3-5	5060															3036	2024
7109	1-3		595	595															
		3-5	595																595
7107	¼-1		1889															944	945
		3-5	1889															1889	
7121	3-5		7419		742	1484	2225	2226	742										
		3-5	7419	1484	1484	1484	1484	1483											
		Total	18786																

Census tracts within 5 miles of Foster Grant and Borden but not within 5 miles of Great American

	Distance from (Miles)		Directions from the Plants																
	Foster Grant	Borden	Total	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
7092	3-5		10723							1072	3217	3217	2145	1072					
		3-5	10723					1072	1072	1072	1072	1072	1072	1072	1073	1073	1073		
		Total	10723																

MASSACHUSETTS

Fitchburg
Leominster

Census tracts within 5 miles of all three plants

Distance from (Miles)			Directions from the Plants															
Great American	Foster Grant	Borden	Total	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
½-1			4969		497	497	497	497	994	1987									
	1-3		4969	2982	497														1490
		3-5	4969	1987															2982
½-1			8156												1631	2447	3262	816	
	3-5		8156															8156	
		3-5	8156															2447	5709
½-1			3914	1174	2349	391													
	3-5		3914																3914
		3-5	3914	782															3132
3-5			5776							5776									
	1-3		5776							2310	2888	578							
		½-1	5776	1155	578	1732	1733												578
1-3			5919								592	592	592	1775	1776	592			
	3-5		5919													592	3551	1776	
		3-5	5919														1184	3551	1184
1-3			2722																
	3-5		2722												544	2178			
		3-5	2722														1634	1088	
																		2722	
1-3			7983							3193	4790								
	½-1		7983										798	1597	1597	1596	1597	798	
		1-3	7983															3193	4790

V-D-1a

	Distance from (Miles)		Directions from the Plants															
Great American	Foster Grant	Borden	Total	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
1-3			1708																
	½-1		1708						171	1537									
		1-3	1708	171	171	171	171	171	341	341	171								
3-5			5045	1195	342														171
	1-3		5045					1009	3027	1009									
		1-3	5045	1513	1009	1009	1009	1009	1009										
3-5					1514	1009	1009												
	1-3		715																
		1-3	715							501	214								
3-5			715	214	287					287	214	214							
	3-5		989																214
		3-5	989									397	296	296					
		Total	47896										198	297	296	198			
														99	198	297	296	99	

V.E. Appendix -- List of Plants

Appendix: Plants considered for inclusion in survey

1. Plants included in survey

A. Plants in tracted areas

Air Products, Inc. (Air Products and Chemicals, Inc.)	Highway 90, 1 mile north of Fishermans Point, Escambia Bay Pace, FL
Allied Chemicals Co.	Gulf State Road near River Mile 235.5, Mississippi River Baton Rouge, LA
BASF Wyandotte Corp.	50 Central Ave. South Kearney, NJ
Borden, Inc.	511 Lancaster St. Leominster, MA
Continental Oil Co.	Old Spanish Trail Westlake, LA
	Near 59th and Interspace Sts., Oklahoma City, OK
Diamond Shamrock Corp.	River Road Delaware City, DE
	La Porte Highway Deer Park, TX
Dow Chemical Corp.	Highway 523 and Highway 332 Freeport, TX.
Ethyl Corp.	Gulf State Road Baton Rouge, LA
	South St. (Ethyl Road) Pasadena, TX

Firestone Tire and Rubber Co.	On Route 70, 1 mile north of Perryville, MD
	Firestone Boulevard Pottstown, PA
Foster Grant Co.	289 North Main St. Leominster, MA
GAF Corp.	Industrial Ave. Texas City, TX
B. F. Goodrich Co.	2114 East 223rd St. Carson, CA
	Bells Lane and 41st St. Louisville, KY
	Porcupine Road and Route 130 Pedricktown, MD
	Intersection of Walker and Moore Roads Avon Lake, OH
Goodyear Tire and Rubber Co.	5408 Baker St. Niagara Falls, NY
Great American Chemical Co.	650 Water St. Fitchburg, MA
Keysor-Century Corp.	26000 Springbrook Ave. Saugus, CA
Montsano Co.	730 Worcester St. Indian Orchard, MA
	201 Bay St. Texas City, TX
Occidental Petroleum Corp. (Hooker Chemical Corp.)	River Road Burlington, NJ
	8 New South Road Hicksville, NY
Pantasote Co.	26 Jefferson St. Passaic, NJ

PPG Industries, Inc.	Columbia Southern Road Westlake, LA
Robintech, Inc.	786 Hardy Road Painesville, OH
Shell Oil Co.	Highway 225 Deer Park, TX
Stauffer Chemical Co.	2112 East 223rd St. Carson, CA
	Schoolhouse Road Delaware City, DE
Tenneco, Inc. (Tenneco Chemicals, Inc.)	Beverly Road Burlington, NJ
	4403 La Porte Road Pasadena, TX
Union Carbide Corp.	Highway 146 and Texas Ave. Texas City, TX
	4337 McCorkle Ave., S.W., South Charleston, WV
Uniroyal, Inc.	720 Fairport Nursery Road Painesville, OH

B. Plants outside tracted areas

Air Products, Inc. (Air Products and Chemicals, Inc.)	Highway 95, about 2 miles north of Calvert City, KY
Allied Chemical Corp.	River Road, 2 miles north of Geismar, LA
Borden, Inc.	Route 36, 1 mile west of Illiopolis, IL
	Geismar, LA
Continental Oil Co.	3 miles southwest of Aberdeen, MS

Dow Chemical Co.	1 mile north of Plaquemine, LA
	1 mile south of Midland, MI
General Tire Co.	Middle Road near State Road Ashtabula, OH
B. F. Goodrich Co.	Near River Mile 17, Tennessee River Calvert City, KY
	2 miles north of Henry, IL
Goodyear Tire and Rubber Co.	1 mile northeast of Plaquemine, LA
Monochem, Inc.	Route 73 and River Road Geismar, LA
Pantasote Co.	Ohio River Road, 3 miles north of Point Pleasant, WV
PPG Industries, Inc.	Near where Guayanilla River flows into Guayanilla Bay Playa Guayanilla, PR
SCM Corp.	216 Sprowl Road Huron, OH
Shell Oil Co.	Norco, LA
Tenneco, Inc. (Tenneco Chemicals, Inc.)	Route 202 South, 3 miles east of Flemington, NJ
Union Carbide Corp.	2 miles west of Taft, LA
Vulcan Materials Co.	Intersection of Highway 70 and State Highway 30 Geismar, LA

2. Plants excluded from survey

A. Plants reported closed

B. F. Goodrich Co.	181 Presidio Place Williamsville, NY
National Starch and Chemical Corp.	Meredosia, IL
Olin Corp.	238 South Main St. Assonet, MA

B. Plants not producing vinyl chloride or related products

Atlantic Tubing and Rubber Co.	Cranston, RI
W. R. Grace Co.	Owensboro, KY South Acton, MA
Borden, Inc.	911 Johnson St. Bainbridge, NY
	20740 South Wilmington Compton, CA
	Demopolis, AL
Morton-Norwich Products, Inc.	Ringwood, IL

Note: Addresses are as accurate as possible. Where no street or descriptive address is given, it was not obtainable within the time constraints of this survey.

Information on plants closed or not producing vinyl chloride or related products obtained from plant management, EPA regional offices, and local respondents.